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ABSTRACT

This document is designed to inform architects and school administrators of performance standards for new school construction. It can determine the worth of design proposals during the preliminary design stage and assist in evaluating existing schools. Evaluators can rate buildings against certain criteria in each of ten categories on the scale of ten points. These points are then totaled for each of ten major categories -- planning, finance, site, space, light, heat/air, sound, aesthetics, equipment, and maintenance -- and the rating for each category transferred to the wheel in the form of a dot on a graph. When the wheel graph has been marked for each category, the dots are connected and the resulting geometric shape is the building's rating. (Author)

PROFILE RATING WHEEL

AN INSTRUMENT TO EVALUATE
SCHOOL FACILITIES

EA 001 888

BUREAU OF
SCHOOL
PLANNING
CALIFORNIA STATE DEPARTMENT OF EDUCATION
Wilson Riles, Superintendent of Public Instruction, Sacramento, 1972

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PROFILE RATING WHEEL A PLANNING

AN INSTRUMENT TO EVALUATE SCHOOL FACILITIES

Prepared by
BUREAU OF SCHOOL PLANNING
CALIFORNIA STATE DEPARTMENT OF EDUCATION

Revised 1971

FOREWORD

The function of California public schools is the provision and maintenance of high quality educational programs. These programs must be maintained in schools with facilities that are both adequate and appropriate for this function. Our State Department of Education has responsibility for providing information to those who have major roles in determining the facilities required: school district governing boards, administrators, teachers, architects and the lay citizen. This responsibility is met through informational services provided by the Bureau of School Planning in the Department's Division of School Administration and Finance.

The Profile Rating Wheel is designed to inform architects and school administrators of performance standards for new school construction. It can determine the worth of design proposals during the preliminary design stage and assist in evaluating existing schools. Complete evaluation of proposed school facilities during the design phase is essential to the ultimate success of each project by providing the best possible educational environment for the child.

I am hopeful that this document will provide valuable information needed for the continued improvement of educational facilities for the benefit of California's school children.

Superintendent of Public Instruction

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PROFILE RATING WHEEL

AN INSTRUMENT TO EVALUATE SCHOOL FACILITIES

This document is designed to inform architects and school administrators of performance standards for new school construction. It can determine the worth of design proposals during the preliminary design stage and assist in evaluating existing schools.

INSTRUCTIONS:

1. Read the statements carefully and evaluate the building against the criteria. Place the number which best indicates your rating in the appropriate column. For example, if the maximum number that may be earned for a single criterion is 2.0 you may score the building from 0 to 2.0 depending on the degree of compliance. For example, a school may score 1.6 out of 2.0 possible points. However, some criteria are significant enough, if rated zero, to question the validity of the entire school. These points have been designated with an asterisk*.

2. When all statements in a category have been considered, write the total where indicated. Then place a dot on the appropriate circle of the graph. For example, a total of 5 under LIGHT would position the dot on spoke E, circle 5.

3. When the wheel graph has been marked for each category, connect the dots. The resulting geometric shape will be the profile of the building's rating. (See sample rating wheel.) There are 10 categories to be rated and each category has a maximum value of 10 points for a total of 100. This permits the evaluator to rate the building in percentage points.

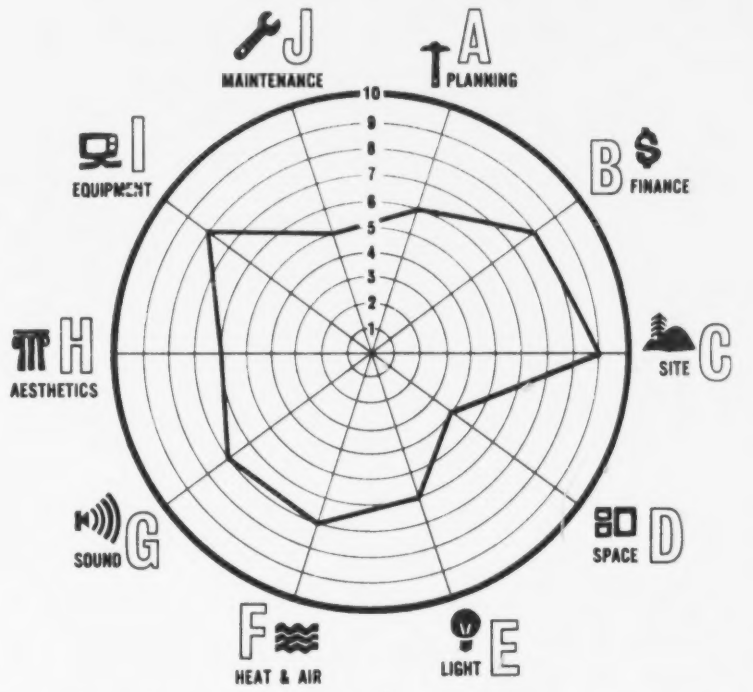
A perfect performance evaluation would place all the dots on the circle 10 spaces from the center of the wheel and score 100 percent. To earn such a score, a building would be technically very sophisticated. Performance is partly dependent on money; however, a limited budget would not necessarily produce a small area on the circle graph or a low numerical score, indicating a poor performance. Inadequate construction funding can prevent the best architect from earning a perfect score, but it should not prevent him from making decisions which reflect his skill and knowledge.

SAMPLE PROFILE RATING

PROFILE RATING WHEEL

AN INSTRUMENT TO EVALUATE SCHOOL FACILITIES

A. PLANNING	6	E. LIGHT	6	I. EQUIPMENT	8
B. FINANCE	8	F. HEAT & AIR	7	J. MAINTENANCE	5
C. SITE	9	G. SOUND	7		
D. SPACE	4	H. AESTHETICS	6	TOTAL RATING	66



Project HARPER VALLEY JR. HIGH SCHOOL Date 1-20-70

District JACKSON SCHOOL DIST. Evaluator PROF. HIGGINS

10	Excellent
8-9	Good
6-7	Average
4-5	Poor
0-3	Not Acceptable

The sample shown is the rating of a hypothetical school with an overall evaluation score of 66. Many existing California schools will rate no higher. When the rating for each category is transferred to the wheel by locating a point on each spoke according to instructions and the dots are connected, this results in a geometric shape or profile rating of the building. A balanced solution (the same rating for each category) would give a near circle. The profile illustrated here is somewhat out of balance, but it points up the strengths and weaknesses of each category. It can be seen at a glance that FINANCE, SITE, and EQUIPMENT have a good rating, but SPACE and MAINTENANCE are rated poor.

	Points Possible	Rating
1. ARCHITECT SELECTION The project architect was selected from an evaluation of three or more firms and included: a. field evaluation of their previous school work b. review of staff and office operation of each architect considered c. identification of personnel who would have responsibility for project design, engineering, coordination, and supervision.	2.0	
2. PLANNING TEAM A building committee was formed from district personnel to study housing needs in cooperation with the architect and the best planning consultants and education specialists available to the district.	2.0	
3. CONCEPTS The planning team gave careful consideration to contemporary innovations in education and school plant organization such as: a. flexible scheduling patterns b. continuous growth programs with individual instruction activities c. cooperative or team teaching with large and small group activities d. extensive use of audiovisual techniques and electronic communications e. teacher work centers and material centers in proximity to academic instruction areas f. plant organization that permits the school to operate with small independent sub-schools when desired.	2.0	
4. NEEDS DEFINED Documentation of required facilities by the committee included: a. statement of the district's educational philosophy approved by the governing board b. study of projected enrollments and community growth patterns c. study of the utilization of existing facilities d. educational specifications which carefully defined curriculum, pupil grouping and scheduling, organization, methods of instruction, and activities to be housed.	2.0	
5. TRANSLATION The building committee translated their educational specifications to the architect by discussing in detail the documented information. During initial design phases, they questioned, evaluated, and considered alternatives to the architect's preliminary studies before giving approval to his design solutions.	2.0	
	TOTAL 10.0	

B $ FINANCE

	Points Possible	Rating
1. ASSESSMENT OF NEEDS The district maintains a long-range financial program for school construction that includes an estimate of funds necessary to finance: a. current housing needs b. future housing needs based on a five-year projection of enrollment. (It is recommended that districts which anticipate little or no enrollment increase maintain a ten-year projection that includes replacement of outmoded facilities.)	**2.0**	
2. ASSESSMENT OF RESOURCES Before programming this project, the district obtained complete up-to-date information on its assessed valuation, tax rate, bond indebtedness, borrowing limits, and sources of financial aid.	**2.0**	
3. LEVEL OF FUNDING Money budgeted for this building project was sufficient for site purchase, site development, construction, engineering fees, and furniture and equipment.	**2.0**	
4. ECONOMIES Economies were achieved by: a. purchasing the site well in advance of need b. using professional programming techniques and planning processes to determine actual facilities needed c. using modular construction and prefabricated components d. selecting materials that provide maximum service relative to initial cost and fire insurance rates e. constructing multi-use spaces for maximum space utilization.	**2.0**	
5. BIDDING Competitive bidding procedures: a. provided plans and specifications that were complete, accurate, clearly written, and left very little to the discretion of contractors b. required a pre-bid conference between the architect and general contractors to review and clarify plans and specifications c. allowed ample time for preparing bids d. made use of additive rather than deductive alternates e. required a complete breakdown of items and their cost before approval of change orders.	**2.0**	
TOTAL	**10.0**	

	Points Possible	Rating
1. SIZE The site size is adequate for present and future buildings, playing fields, parking, and bus loading. Length to width geometry does not exceed 3:5 ratio.	2.0	
2. LOCATION The site is located in close relationship to the homes of students who will attend this school and to community facilities such as parks, swimming pools, libraries, and recreation centers. Location of a school on this site will not adversely affect neighborhood values. Site is in conformance with zoning and city or county master plan concepts.	2.0	
3. SAFETY The site is located away from freeways, railways, aircraft flight patterns, dangerous traffic intersections, high-voltage lines, ravines, and other hazards.	1.0*	
4. ACCESSIBILITY Good access and dispersal roads are available to the site.	1.0	
5. UTILITIES Utilities, including gas, electricity, water, sewer lines, and storm drainage lines, are adequate to the present and future needs of this school plant and are available in close proximity to the site.	1.0	
6. CONTOURS The topography provides drainage without need for erosion control and sufficient near-level areas for buildings, playfields, and parking to avoid excessive soil excavation or fill.	1.0	
7. PRESERVATION The site can be developed for school facilities and still retain existing trees, shrubs, streams, outcroppings, interesting topography, and other natural features.	1.0	
8. DEVELOPMENT The site master plan includes a play layout for all physical education facilities and landscaping. If initial funds are inadequate for complete site development, the district is implementing a long-range financial program to complete this work. Areas for parking and bike racks.	1.0	
TOTAL	10.0	

* Critical factor

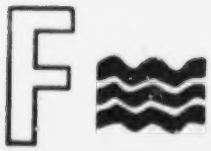
SPACE D

	Points Possible	Rating
1. SIZE AND GEOMETRY The size and geometry of all instruction spaces are determined by the number of occupants and their activities. (Minimum area recommended for normal classroom functions is 30 square feet per occupant at maximum loading.)	2.0*	
2. CONSTRUCTION The basic building shell utilizes spans in excess of 40 feet, and the lighting and ventilating systems are integrated with structural framing. (Integrated design should permit space to be divided by relocating walls into space geometries no greater than 15' x 15'.) Good weather protection is provided at entrance ways to buildings.	2.0	
3. FLEXIBILITY Maximum consideration is given to the use of non-bearing, easily relocatable interior walls or space dividers. (Free-standing units of furniture or cabinets are recommended in preference to demountable partitions or folding walls.)	2.0	
4. SCALE Ceiling heights for major areas of loft space are determined by assuming that the total area may at times be used as one single space. Recommended minimum ceiling heights are: Average 10' for areas over 300 square feet Average 11' for areas over 1200 square feet Average 12' for areas over 1600 square feet	1.0	
5. UTILIZATION A high percent of the total enclosed space is available for educational functions. Consideration was given to space necessary for storage and staff needs. Lobbies, corridors, stairs, mechanical rooms, and similar spaces are of minimal size or totally eliminated. Physical hazards such as steps, balconies, and raised decks have been minimized or eliminated.	2.0	
6. EXPANDIBILITY Design allows for potential increased enrollment, additions and changes in function.	1.0	
TOTAL	10.0	

* Critical factor

	Points Possible	Rating
1. QUANTITY The electric lighting system is designed to permit minimum visual performance equivalent to an effective sphere illuminance (ESI) of 63 footcandles on the pupil's task.	2.0*	
2. BRIGHTNESS Light sources, such as a window or a diffuser of a direct-luminaire fixture, have an average brightness that does not exceed five times the brightness of the pupil's task. Large source areas of brightness, such as the reflective ceiling above an indirect fixture or a ceiling system with fifty percent or more of the total area in luminaires, do not exceed three times the task brightness.	2.0*	
3. REFLECTANCES Interior surfaces meet reflectance values of: 70 - 90 percent for ceilings 40 - 60 percent for walls 30 - 50 percent for floors and furniture	2.0	
4. WINDOWS Where feasible, windows are provided and located for outside viewing. (Windows with a minimum width of 12' and a maximum sill height of 32" are recommended.)	1.0	
5. SCREENING Direct sunlight, sky brightness, snow glare, and other high brightness sources are screened from interiors by glare-reducing glass, building overhangs, or other cutoff devices. Maximum brightness from exterior sources does not exceed 300 footlamberts.	2.0	
6. AUDIOVISUAL Spaces for audiovisual instruction have lighting controlled by dimmers down to 1 - 5 footcandles with provision for room darkening.	1.0	
TOTAL	10.0	

* Critical factor



HEAT & AIR

	Points Possible	Rating
1. TEMPERATURE Inside air temperature of all instruction areas can be maintained at 68-74°F. during winter months, and 76-80°F. during summer months for all hours of normal occupancy.	2.0*	
2. INSULATION Heat gain or loss is minimized with high reflectance roofing, windows shielded from direct sunlight, thermal insulation for exterior walls and roof, and air exhaust of attic spaces.	2.0	
3. AIR EXCHANGE Adequate air exchange is mechanically provided for instruction areas. (Six to eight air changes per hour are recommended.)	2.0*	
4. DISTRIBUTION The air distribution system assures air movement throughout all major spaces and is designed for easy relocation of air grills and thermostatic controls to permit relocation of interior walls. (Forced air systems with flexible ducts are recommended. Unit ventilators and similar packaged units with adjacent air supply and return are not generally acceptable.)	2.0*	
5. EXHAUST Independent exhaust systems, either gravity or mechanical, are provided for toilet rooms, kitchens, science and homemaking laboratories, shower-locker areas, and other spaces with special requirements for removing odors or air impurities.	1.0	
6. SYSTEM DESIGN The mechanical system was engineered after a careful exploration of the feasibility of various engineering concepts. Special consideration was given to maintenance and operating costs and the degree of flexibility provided by the proposed solutions.	1.0*	
TOTAL	10.0	

* Critical factor

	Points Possible	Rating
1. SITE PLANNING Buildings for music, industrial arts, physical education, and other activities which produce great amounts of sound energy are located away from areas of quiet activity.	1.0*	
2. INSULATION Materials and techniques, such as sound-seals, double glazing of windows, and heavy masonry walls, are used to screen out external noise sources such as aircraft, railroads, and freeways.	2.0*	
3. BUILDING SHAPE Acoustical considerations, such as the need to maintain and distribute wanted sound, were properly engineered and major factors in determining the shape, geometry, and selection of wall and ceiling materials in auditoriums, music rooms, large group instruction rooms, and similar spaces of critical hearing.	2.0*	
4. CONSTRUCTION Architectural construction reduces unwanted sound from light ballasts, mechanical equipment, and plumbing; and prevents sound leakage through ducts, electrical receptacles, and attic spaces.	2.0*	
5. ISOLATION In open classroom areas where several groups may utilize adjacent space, maximum design consideration was given to absorbing sound. (Use of acoustically treated deep coffered ceilings to pocket sound, materials such as carpeting to absorb sound, and ambient sound to mask noise is recommended.)	2.0*	
6. ABSORPTION Sufficient sound absorbing materials are provided and located in instruction areas to correct for excessive sound reverberation.	1.0*	
TOTAL	10.0	

* Critical factor

AESTHETICS

	Points Possible	Rating
1. APPROPRIATENESS Design characteristics of the school are appropriate to the community and region of its location. Consideration was given to: a. Use of native materials b. Scale of buildings compatible with residential architecture c. Landscaping complementary to existing landscaping of the neighborhood d. Elements, such as roof overhangs, arcades, or covered walks, and the a amount of windows determined by local climatic conditions. Minimum windows are provided and designed to provide visual relief from the interior (narrow slit windows do not meet this requirements).	2.0	
2. NATURAL ATTRIBUTES The site plan exploits and preserves the best existing elements of natural landscaping and topographical features. Buildings are oriented to views or vistas. Grounds adjacent to buildings are landscaped and the site development for physical education, recreation, and parking is complete.	2.0	
3. HUMANISM The school plant mirrors the human, social, and educational processes which it houses. Consideration was given to: a. Organizing a site plan to create a variety of outdoor spaces and environments which augment the educational program b. Avoidance of buildings which are overly-industrialized or sterile in appearance by use of materials, textures, and detailing that create interest with shadows, sunlight, and stimulating colors c. Use of murals, sculptures, and other applied arts d. Buildings are scaled to age of children e. Screens or grilles are designed not to look prison-like where required for security reasons	2.0	
4. SYNTHESIS The architect has avoided arbitrary building forms and design features which represent gimmicks or cliches. The buildings represent a logical and balanced integration of technical knowledge, engineering, and artistic concepts. Lighting and air-conditioning has been integrated into the total design.	2.0	
5. CHARACTER The architectural solution is orderly, pleasant, and appropriate to contemporary education - a physical environment to satisfy man's emotional needs and stimulate his spiritual and intellectual growth.	2.0	
TOTAL	10.0	

EQUIPMENT

	Points Possible	Rating
1. QUANTITY Furniture and equipment needs were itemized for each instruction area based on the educational program and were provided as required by this survey.	2.0	
2. COMFORT Chairs, tables, lavatories, and toilets are proportioned for the age and size of the children who use them. Furniture was selected for comfort and informal use in lieu of traditional desks, tables, and chairs.	2.0*	
3. MOBILITY Furniture and equipment, including tables, chairs, cabinets, and appliances, are lightweight and designed for mobility. (Special feet or casters are generally required for furniture to be used on carpeted floors.)	2.0	
4. FLEXIBILITY Cabinetwork is designed to hold the actual materials to be used. (It is recommended that storage cabinets have interchangeable drawers and adjustable shelving, and that all major components be modular in design.)	1.0	
5. MAINTENANCE Furniture and equipment are constructed and surfaced with plastics, vinyl coatings, aluminum, and other low maintenance materials that require little refinishing or repair.	1.0	
6. INSTRUCTION WALLS Interior walls and partitions are designed for use as tackboard surfaces, and to anchor chalkboards, pegboards, map rails, and shelving.	1.0	
7. SAFETY Furniture, equipment, and play apparatus are designed to prevent structural failure or breakage and to reduce the possibility of accidental injury to the user.	1.0	
TOTAL	10.0	

* Critical factor

MAINTENANCE

	Points Possible	Rating
1. SITE DEVELOPMENT The total site area allocated to landscaping which requires gardening does not exceed 200 percent of the total enclosed building areas. Outdoor parking areas, curbing, sidewalks, and hardcourt areas are surfaced with permanent-type materials. Automatic sprinkling is provided for turfed areas.	3.0	
2. EXTERIORS Materials selected for exterior walls, facias, and soffits require little or no maintenance.	2.0	
3. INTERIORS Interior walls and ceilings are surfaced with materials that require little or no refinishing. Floor materials are easily maintained. (Use of carpeting is recommended where feasible.)	2.0	
4. ROOFING Selection and application of roofing conforms to standards for obtaining a twenty year life expectancy guaranty bond.	1.0	
5. DURABILITY Underground plumbing and utility lines are protected from electrolysis and corrosion. Window sash, gutters and downspouts, flashing, and other items of metal exposed to the weather are either plated, anodized, specially treated, or of alloys which are corrosion resistant.	1.0	
6. QUALITY Hardware, plumbing fixtures, fenestration, and appliances were specified as commercial grade or better.	1.0	
TOTAL	10.0	

PROFILE RATING WHEEL

AN INSTRUMENT TO EVALUATE SCHOOL FACILITIES

A. PLANNING	____	E. LIGHT	____	I. EQUIPMENT	____
B. FINANCE	____	F. HEAT & AIR	____	J. MAINTENANCE	____
C. SITE	____	G. SOUND	____		
D. SPACE	____	H. AESTHETICS	____	TOTAL RATING	____

Project _____ Date _____

District _____ Evaluator _____